RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)								DATE **February 2000**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**				**R-1 ITEM NOMENCLATURE** **Arms Control Technology; 0603711BR**				
COST *(In Millions)*	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete
Total 0603711BR Cost	57.2	73.5	52.9	50.0	49.6	50.2	51.4	Continuing
Project BB – Small Business Innovative Research (SBIR)			.8	.8	.9	.9	.9	Continuing
Project BI – Arms Control Technology	57.2	73.5	52.1	49.2	48.7	49.3	50.5	Continuing

A. Mission Description and Budget Item Justification - This program element (PE) provides research, development, test, and evaluation (RDT&E) to meet technology requirements in support of implementation, compliance, monitoring and inspection for existing and emerging arms control treaties and agreements. The funded projects address requirements validated by the Office of the Under Secretary of Defense (Acquisition, & Technology, & Logistics (OUSD(AT&L)) to implement, comply with, and monitor the following treaties/agreements: The Treaty on the Reduction and Limitation of Strategic Offensive Arms (START); the Treaty on Further Reduction and Limitation of Strategic Offensive Arms (START II) (START III); the Anti-Ballistic Missile (ABM) Treaty; the Intermediate-Range Nuclear Forces (INF) Treaty; the Conventional Armed Forces in Europe (CFE) Treaty; the Open Skies (OS) Treaty; the Convention on Certain Conventional Weapons (CCW); the Chemical Weapons Convention (CWC); Biological Weapons Convention (BWC); Comprehensive Test Ban Treaty (CTBT); Safeguards, Transparency and Irreversibility (STI) agreement; Missile Technology Control Regime (MCTR); Nuclear Non-proliferation Treaty (NPT); Fissile Material Cut-off Treaty (FMCT); Organization for Security and Cooperation in Europe (OSCE) Confidence- and Security-Building Measures (CSBMs); United Nation’s Transparency in Armaments (TIA) Agreement; Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies; the CFE Adaptation negotiations; the Anti-Personnel landmine (APL) negotiation; and Presidential arms control initiatives.

Mission Description and Budget Item Justification (cont'd) – This PE conforms to the Administration's research and development priorities as related to both conventional arms control and weapons of mass destruction arms control and disarmament. Arms control technologies are critical for enabling the U.S. to monitor, verify and implement international arms control treaties and other agreements whose purpose is to prevent the proliferation of and/or reduce nuclear, chemical, biological, and advanced conventional weapons. Technical assessments are made to provide the basis for sound project development, evaluate existing programs, and provide the data required to make compliance judgments and support U.S. policy and decision-makers and negotiating teams. Technology developments and system improvements projects are conducted to ensure that capabilities to monitor, comply with, and implement treaties and agreements are available when required.

The program includes development of equipment and procedures for data exchanges, on-site and aerial inspections and monitoring, and other confidence-building measures. In addition, assistance is provided to the Office of the Secretary of Defense by providing technical support in preparing for U.S. compliance with treaty obligations. Hardware and procedures developed are often transitioned to the appropriate inspectorate for use in conducting treaty mandated inspection and monitoring and for implementing transparency and confidence-building regimes. Where applicable, RDT&E to meet requirements in one treaty area is applied to fulfill requirements in other areas to eliminate duplication of efforts. The technologies and procedures developed in the arms control technology program provided an invaluable source of information on equipment and procedures that was extensively used by an Agency team to support an interagency assessment of Long Term Monitoring of Iraq. The results of the effort and equipment developed in this program are also being used to implement the provisions of United Nations Resolution 715. The Agency's synergistic approach to fulfilling arms control requirements has been maximized in data management development. Arms control treaties require extensive exchanges of data concerning treaty accountable items, initial declarations, movements, etc., by signatory nations. The Agency has developed a treaty information management system, the Compliance Monitoring and Tracking System (CMTS), to accommodate these data exchanges and monitor U.S. compliance with treaty data reporting provisions. The CMTS provides treaty-required data exchanges and monitors U.S. compliance with treaty data reporting provisions.

Mission Description and Budget Item Justification (cont'd) - The CMTS provides treaty-required data exchanges for INF, START, CFE and Confidence- and Security-Building Measures. The Open Skies Notification System (OSNS) is being developed to support anticipated treaty entry-into-force (EIF). This PE also supports the JCS warfighting capability area of counterproliferation.

In FY 1999, the architecture for presentation/execution of this program changed. Elimination and realignment of the Implementation and Compliance (I&C) category resulted in all negotiation, compliance, and implementation efforts moving to the Technical Assessments category. All hardware and software developments in I&C have moved to the Technology Development or Improvements category to reflect the actual nature of the effort. During its first year of operation, DTRA has overcome many challenges in the process of focusing agency organization and resources to the threat reduction mission. This has required re-aligning predecessor agencies' legacy programs and support baseline resources into an integrated DTRA program and resource structure. Particular attention has been devoted to realigning the research and development investment programs. Project BI is a product of consolidating what were previously four projects in this PE: Strategic Arms Control Technology (Project CA), Conventional Arms Control Technology (Project CB), Chemical and Biological Arms Control Technology (Project CC), and Nuclear Arms Control Technology (Project CD).

Project BB – Small Business Innovative Research (SBIR) - This project provides the means for stimulating technological innovation in the private sector, strengthens the role of small business in meeting DoD research and development needs; fosters and encourages participation of minority and disadvantaged businesses in technological innovation; and increases the commercial application of DoD supported research and development results. These efforts are responsive to PL 102-564.

FY 2001 Plans

Small Business Innovative Research ($813K)

- Support the Small Business Administration (SBA) National Direction by actively seeking small business contractors to perform innovative research.
- Execute Agency-approved SBIRs.

Project BI - Arms Control Technology – This project provides an integrated and comprehensive approach to meeting the technology requirements associated with achieving national defense arms control objectives. The major activities consist of the following:

Develop procedures and equipment that will enable the USG to effectively exercise treaty inspection rights and monitor compliance and reporting associated with anticipated future treaty requirements in the most non-intrusive and cost-effective manner. Objectives include achieving more effective methods of measuring characteristic Treaty-Limited Item (TLI) signatures (e.g. for non-deployed missiles and warheads in all phases, to include conversion and/or elimination) with technologies such as object and pattern recognition and micro-machined integrated neutron detectors and as well as providing monitoring/inspection capabilities to ultimately reduce cost and increase the flexibility of U.S. inspectors.

Develop technology to provide information collection, processing and dissemination capabilities required for compliance assessments and meet notification and reporting requirements associated with evolving treaties and agreements (e.g. new rules for counting strategic forces).

Develop technology to support revised implementation and compliance requirements resulting from the decisions of CFE's Joint Consultative Group; the OSCE's Forum for Security Cooperation; NATO's Verification Coordinating Committee and the High Level Task Force; the Conference on Disarmament; the Multilateral Working Group on Arms Control and Regional Security; the Wassenaar Arrangement; and the Open Skies Consultative Commission.

Perform technology assessments and provide technical input to support developing negotiating positions on APL and Small Arms/Light Weapons.

Perform technology assessments to support development of innovative agreements addressing arms control issues unique to a geographic region.

Prepare for implementation of the convention on the Prohibition of the Development, Production, Stockpiling, and Use of Chemical Weapons and on their Destruction (CWC), and for a new protocol under the Biological Weapons Convention (BWC). A primary objective is to develop and validate technologies that ensure on-site sampling and analysis is effective and that DoD equities are protected during the course of all inspections.

Project BI - Arms Control Technology (cont'd)–

Develop technologies to synergistically support both the U.S. – Russian Chemical Weapons Bilateral Destruction Agreement, international peacekeeping efforts such as the UN Special Commission on Iraq and other non-proliferation initiatives.

Perform technology assessments and provide technical expertise to support DoD and U.S. policy makers and negotiators in determining the impact of proposed BWC inspection methodologies and requirements on DoD equities and in representing the U.S. during BWC Ad Hoc Group meetings.

Perform technical assessments of transparency measures considered as part of planned exchange visits among the US/UK/Russia, in accordance with the 1992 Trilateral Statement in order to resolve ambiguities in compliance with the BWC while promoting transparency of legitimate military BW defense programs.

Develop the nuclear test monitoring capability required to fulfill U.S. obligations under the CTBT as well as to independently monitor and detect nuclear test activities worldwide.

Develop prototype and transition the CTBT International Data Center (IDC) with the capability to acquire, archive, process, and analyze data from approximately 320 International Monitoring System (IMS) sensor stations positioned around the globe and to disseminate raw data products to all States Parties.

Develop, integrate, test, and evaluate an interface to the international CTBT organization to support routing of data between U.S. facilities and the CTBT IDC.

Conduct basic research in geophysical and physical phenomena that must be understood in order to meet current limited nuclear testing agreements' standards at decreasing cost over time, to enhance monitoring capabilities to detect treaty violators, and to provide high-confidence independent monitoring of nuclear activities required to protect national defense interests under a zero-yield CTBT.

Project BI - Arms Control Technology (cont'd) –
FY 1999 Accomplishments

Technical Assessments ($8,705K)

- Completed Ultraviolet Air Scintillation emerging technology laboratory experiment in cooperation with U.S. Army Space and Missile Defense Command.
- Completed START III Technology Planning Study to identify research areas for exploitation.
- Participated in the formation and organization of the Joint DOE/DoD Integrated Technology project.
- Co-chaired the Joint DOE/DoD Integrated Technology Working Groups on Radiation Technology, Remote/Unattended Monitoring Alternate Technology, and Tags/Seals. Actively participated in Steering Committee, Technology Assessment Working Group, Information Barriers Working Group, and Vulnerability and Security Analysis Working Group.
- Participated in Trilateral Initiative demonstration of Information Barrier technology.
- Initiated planning for a Joint DOD/DOE START III monitoring demonstration at DOE's Pantex Plant.
- Initiated Alternate Technology Working Group activities to survey, evaluate and select non-radiation-based alternatives for a potential START III transparency regime. Initiated Remote/Unattended Monitoring Working Group activities to evaluate and START III transpareny regime.
- Initiated plenary discussions with Russian laboratories on cooperative research in strategic arms control monitoring.
- Identified options for modifying the ABM treaty to accommodate Theater Missile Defense (TMD) and National Missile Defense (NMD) deployment.
- Designed a software architecture for an integrated Arms Control Information Notification System (ACINS) that complies with all DoD software directives.
- Assessed the technological impact of ABM Treaty-related limitations on the target missile during TMD testing and its effect on TMD development.

Project BI - Arms Control Technology (cont'd) –

Provided technical support for START, START II and START III negotiations.
Assessed various technology options to support the U.S. delegations to the Open Skies Consultative Commission (OSCC), the Joint Consultative Group and CFE Adaptation, the Forum for Security Cooperative and the APL, Small Arms/Light Weapons (SA/LW) and regional arms control negotiations.
Provided treaty compliance assessments and planning support to OUSD(AT&L)/ACI&C.
Assessed technology requirements of potential regional arms control initiatives for the Asia-Pacific Rim and Latin America.
Initiated performance evaluations of current Open Skies sensors.
Completed infra-red (IR) and video sensor technology assessments and developed operational requirements supporting Open Skies.
Monitored Open Skies sensor data acquisition, reduction and analysis to support Open Skies negotiations.
Expanded the Arms Control Technology Reference and Display Center to include new promising arms control technologies.
Completed Y2K testing of CMTS host; upgraded CMTS host operating system to Solaris 2.6.
Initiated assessments of technologies potentially applicable to wide-area detection (WAD) of APL minefields.
Completed proof-of-concept and data collection on advanced non-destructive evaluation technology concept (ultrasonic remote assay of munitions (URAM)).
Provided technical support to CW Treaty Manager, OSD Policy and Army in preparation for CWC Executive Council Sessions and the Conference of States Parties.
Participated in Organization for the Prohibition of Chemical Weapons (OPCW) technical working groups, including those involving analytical data base spectral validation and on-site analytical procedures, to identify data gaps.
Initiated vapor testing of minicams for lewisite detection.
Delivered updated CW treaty reference collection.
Completed independent testing and validation of rapid CW microspot screening kit.

Project BI - Arms Control Technology (cont'd) –

Updated BW History Database, archived relevant historical documents, and initiated inclusion of current Biological Defense Program information into the Data base.

Provided technical support during BWC bilateral discussions with Allies and negotiations at the 15th BWC Ad Hoc Group meeting in Geneva.

Provided technical analysis and vulnerability assessments on implementing the BWC Protocol.

Identified information processing requirements and data management techniques to satisfy potential reporting requirements under the BWC.

Identified CTBT implementation and compliance issues.

Developed the types of information to be presented to policy and decision makers in support of interagency and international groups.

Studied DoD vulnerability under the Strengthened Safeguards System protocol (S3P).

Technology Development ($48,463K)

Completed development of a room temperature, moderate-resolution, hand-held cadmium-zinc-telluride radiation detector.

Initiated Radiation Technology Working Group activities to evaluate radiation detectors and select medium and high-detection systems for use in a potential START III transparency regime.

Initiated Remote/Unattended Monitoring Working Group activities to evaluate START III transparency regime.

Initiated Tags/Seals Working Group activities to survey, evaluate and select tags and seals alternatives for use in a potential START III transparency regime.

Initiated Phase II SBIR effort to develop a portable gamma camera able to provide both spatial and energy resolution.

Ensured that the Comprehensive Monitoring and Tracking System complied with all Y2K requirements.

Continued development of a standard digital format for Open Skies digital sensors data.

Completed planned Open Skies Management & Planning System (OSMAPS) baseline updates, modifications and independent validation and verification (IV&V) of software.

Completed OSMAPS Y2K certification.

Project BI - Arms Control Technology (cont'd) –

Conducted IV&V of arms control information processing(IP)software.
Continued development of the Regional Inspection Simulation Tool(RIST).
Demonstrated developmental system at U.S. State Department and DTRA Arms Control Conference.
Continued development of Theatre Site Equipment Identification Module for CMTS and delivered copies to EUCOM, USAFE, USAEUR, and DTRA activities.
Demonstrated prototype Microbial Mine Detection System (MMDS).
Initiated Microwave Radar Algorithm (MRA) effort for WAD and mapping of APL minefields.
Completed Chemical Accountability Management Information Network (CAMIN) development; certified system as Y2K compliant and transferred system to the Army.
Completed hardened field version of Swept Frequency Acoustic Interferometry instrument for non-destructive evaluation and demonstrated the technology in several Government and public venues.
Completed development of prototype mini-Portable Isotopic Neutron Spectroscopy instrument.
Completed alpha testing of Automated Mass Spectral Deconvolution Identification System (AMDIS) and modified software to include chemical class and retention indices.
Developed an on-line BW-related historical developed to provide OSD(P) with search and retrieval capability.
Conducted an initial test of a new data management technique to satisfy current BWC Confidence Building Measures and potential reporting requirements under the CWC.
Developed a database on US DoD Bio-defense Facilities to assist negotiators at Ad Hoc meetings to assess US DoD vulnerabilities and to identify impacts of proposed inspection methodologies.
Developed a data management system of BWC-related reference material ("Agents of Biological Origin Database").
Maintained and operated existing IMS stations to support development of prototype IDC.
Continued IMS station certification with CTBT Organization.

Project BI - Arms Control Technology (cont'd) –

- Upgraded two primary seismic stations to CTBT standards.
- Integrated proven seismic, hydroacoustic, infrasound, and radionuclide data exploitation techniques into the automated and interactive systems.
- Continued transition of the prototype International Data Center (IDC)systems(Version 2)to the international CTBT organization.
- Performed Y2K remediation on all software systems.
- Validated prototype IDC for conducting initial operational testing and evaluation.
- Developed upgrades to increase the prototype IDC capability to support on-going R&D.
- Continued the development of U.S. Multi- casting Data Routing protocol and interface with the IDC.
- Continued to develop computerized, rapidly-executing techniques and algorithms to detect, locate, and identify seismic, acoustic and radionuclide signals from operational sensor systems.
- Continued research and development to improve understanding of source phenomenology and propagation for nuclear treaty-relevant events near detection threshold and to enhance detection, location, screening, and identification of seismic, oceanic, and atmosphere events. Complied with Congressional emphasis on supporting nuclear treaty verification and compliance.
- Developed the types of information to be presented to policy and decision makers in support of interagency and international groups.
- Developed cost-effective techniques for arms control related databases.
- Continued and accelerated the industry-based nuclear detection analysis systems development in compliance with Congressional emphasis.

FY 2000 Plans

Technical Assessments ($ 8,775K)

- Assess and document threats to a potential START III verification technology suite and develop common threat definitions for technology evaluation purposes.
- Evaluate requirements for upgrades to Votkinsk continuous monitoring system for START following INF monitoring conclusion in FY01.
- Initiate effort to extract lessons-learned from START and INF for use in negotiating future arms control regimes.

Project BI - Arms Control Technology (cont'd) –

- Initiate Space Arms Control Technology Assessment to support DoD analysis and evaluation of potential space arms control measures and their need for verification technology developments.
- Assess the technological impact of multilateral strategic verification regimes.
- Execute an adversarial analysis of options for modifications to the ABM treaty to accommodate Theater Missile Defense (TMD)and National Missile Defense (NMD) deployment.
- Assess requirements for a START III inventory, monitoring, and notification system as part of Arms Control Information and Notification System (ACINS).
- Complete a Regional Verification Technology Study on technologies suitable for monitoring strategic treaties in the Middle East.
- Provide technical negotiation support for START, START II and START III.
- Assess various technology options to support the U.S. arms control delegations to NATO, OSCC, the Joint Consultative Group, the Forum for Security Cooperation, and the APL, Small Arms/Light Weapons (SA/LW), and regional arms control negotiations.
- Provide treaty compliance assessments and planning support to OUSD(AT&L)/ACI&C.
- Provide requisite technical assessments for Open Skies, APL, CCW and SA/LW treaties/negotiations.
- Continue Open Skies sensor performance evaluations, provide optical camera assessment, and provide acquisition support for IRLS and video camera.
- Initiate assessment of potential utility of aerial monitoring and inspection overflights as a tool to support verification efforts of multiple treaties, including CFE, CTBT, and environmental agreements.
- Initiate assessment of OSMAPS life-cycle upgrade.
- Assess technology requirements of potential regional arms control initiatives in the Middle East.
- Review rapid gas chromatagraph (GC), with new detectors and other alternative technologies for determinative CWC-related sample analysis.
- Evaluate Surface Acoustic Wave (SAW) devices, ionmobility spectroscopy devices for sample screening applications.

Project BI - Arms Control Technology (cont'd) –

- Assess impact of CWC inspection/monitoring technologies and methodologies on DoD facilities and agencies.
- Evaluate assets and vulnerabilities relative to potential challenge inspections.
- Update BW History on-line database.
- Provide technical support to OSD(P) during BWC protocol negotiations and potential Preparatory Commission (PrepCom)activity.
- Continue providing technical analysis and vulnerability assessments on implementing the BWC Protocol.
- Conduct analyses and assessments of selected CTBT implementation and compliance issues.

Technology Development ($ 64,753K)

- Conduct a Joint DoD/DOE START III monitoring demonstration at DOE's Pantex Plant for the Interagency Working Group.
- Initiate adaptation projects for technologies identified by Alternate Technology Working Group for non-radiation based alternatives for a potential START III transparency regime.
- Explore possibilities of electromagnetic coil instruments to characterize Special Nuclear Material (SNM) in containers.
- Investigate potential for an infrared sensor to detect warheads by detecting the high explosives within the warhead.
- Develop technology for nuclear material detection, analysis, and forensics systems assessments.
- Initiate effort to investigate applications of ultrasonic interferometry technique (originally developed for Chemical Weapons Convention use) to strategic arms control monitoring.
- Initiate an effort to automate the presentation of Russian and U.S. nuclear weapons system life cycles in support of treaty negotiations.
- Initiate contracts with Russian laboratories to accomplish cooperative research in Russia on strategic arms control monitoring.
- Continue Phase II SBIR effort to develop a portable gamma camera able to provide both spatial and energy resolution.
- Initiate development of a software tool to automate compliance assessments of

Project BI - Arms Control Technology (cont'd) –

potential TMD systems with respect to the ABM treaty.Initiate development of an integrated Arms Control Information Notification System (ACINS) that complies with all DoD software directives.

Deliver Full Operational Capability (FOC) version of OSMAPS.

Begin proof-of-concept of follow-on technologies to support implementation and compliance with the future APL agreements.

Refine MMDS approach. Deliver prototype MRA software to detect and discriminate non-metallic APL.

Complete development of the RIST system and deploy IOC system to the Middle East with specific training modules, as required.

Integrate FOC of VERITY Treaty-Limited Equipment (TLE) Search System to identify international sites and assets within a defined area.

Conduct APL sensor demonstrations for the purpose of APL treaty applications.

Develop enhanced time-efficient sample screening methods for on-site CWC inspections.

Integrate inspection methods and equipment to optimize throughput of CWC-related samples, utilizing commercial off-the-shelf (COTS) equipment.

Continue development of follow-on non-destructive evaluation (NDE) capabilities for standoff chemical munition classification, identification, and quantification.

Conduct technology integration for on-site BWC-related analytical equipment and Methodologies. Test and evaluate to assess operational performance, environmental durability, safety and overall effectiveness.

Develop a distributed DoD data management system for compiling and submitting BWC declarations.

Continue test and evaluation of IMS primary seismic stations in support of the Prototype International Data Center.

Initiate test and evaluation of prototype IMS auxiliary seismic stations.

Initiate prototype development of IMS radionuclide sensors.

Continue certification of IMS monitoring stations.

Continue transition of the prototype IDC systems with delivery of version 3 software to the International CTBT Organization.

Conduct validation of operational test and evaluation of software releases for IDC systems.

Project BI - Arms Control Technology (cont'd) –

Develop upgrades to increase the prototype IDC capability to support on-going R&D.
Continue research and development efforts in support of the CTBT National Authority and National Data Center and integrate enhanced tools.
Initiate location calibration research for IMS seismic stations.
Continue development of cost-effective computerized, rapidly executing techniques and algorithms to detect, locate, and identify seismic, acoustic and radionuclide signals from operational sensor systems.
Continue research and development to improve understanding of source phenomenology and propagation for nuclear treaty-related events near detection threshold and enhance detection, location, screening and identification of underground, oceanic, and atmospheric events through a peer-reviewed program of basic research.
Expand the basic and applied research in support of nuclear test detection in compliance with Congressional emphasis.
Conduct analysis and assessments of selected CTBT implementation and compliance issues.
Develop decision making tools for policy and decision makers to support interagency and international groups.
Continue the industry-based development of nuclear detection sensors and analysis technology in compliance with Congressional emphasis.

FY 2001 Plans

Technical Assessment ($8,931K)

Complete effort to extract lessons-learned from START and INF for use in negotiating future arms control regimes.
Provide technical negotiation support for START, START II and START III.
Assess various technology options to support the U.S. arms control delegations to NATO, OSCC, the Joint Consultative Group, the Forum for Security Cooperation, the APL, Small Arms/Light Weapons (SA/LW), and regional arms control negotiations.
Complete assessment of aerial monitoring for treaty verification and confidence building.
Continue performance evaluation of Open Skies sensors and recommend enhancements as needed.

Project BI - Arms Control Technology (cont'd) –

Assess follow-on Synthetic Aperature Radar (SAR) system and provide acquisition RDT&E support for the Open Skies aircraft optical cameras, video camera and IRLS.
Assess integrated system feasibility of stand off APL detection and mapping.
Assess CFE treaty technical needs based on historical performance of inspections to support CFE Review Conference (REVCON).
Conduct OSMAPS life-cycle and mission needs planning.
Complete Final Report on Regional Area Technical Assessment for the Middle East.
Conduct assessment of information processing (IP) needs for an APL ban.
Define user and system software requirements for next generation of CWC-related analytical equipment.
Evaluate advanced Mass Spectrometry technology for CWC-related applications.
Evaluate implications and consequences for DoD of potential changes to the CWC Review Conference (REVCON).
Provide technical support to OSD(P) in preparation for BWC Review Conference (REVCON).
Conduct analyses and assessments of selected CTBT implementation and compliance issues.

Technology Development ($43,186K)

Complete Phase II SBIR effort to develop a portable gamma camera able to provide both spatial and energy resolution.
Complete development of a software tool to evaluate compliance of a potential TMD system with the ABM treaty.
Continue development of an integrated ACINS that complies with all DoD software directives.
Plan and execute a START III monitoring regime demonstration at the Pantex Plant for representatives from the Russian Federation.
Complete effort to investigate applications of ultrasonic interferometry technique (originally developed for Chemical Weapons convention use) to strategic arms control monitoring.
Initiate the development of an extended digital processor to process foreign digital sensor data to ensure treaty-required resolution of foreign sensors used in overflights of the U.S.

Project BI - Arms Control Technology (cont'd) –

- Begin development of an aerial monitoring system applicable to multiple treaties and agreements.
- Continue development of the next generation of treaty support information management systems, Arms Control Information and Notification System (ACINS), using state-of-the-art technologies and adhering to DoD standards.
- Initiate development of OSMAPS life-cycle upgrades and perform IV&V as required.
- Complete development of VERITY TLE Search System and deliver final documentation and source code.
- Continue deployment and adaptation of RIST and required training modules.
- Initiate development of Gas Chromatography/Mass Spectometry (GC/MS) follow-on technology capable of determinative analysis.
- Continue testing and evaluating inspection equipment for performance, ruggedness, safety, and effectiveness.
- Develop alternative technologies for determinative CWC-related sample analysis.
- Revise and enhance on-site BW determinative sample analysis technologies and methodologies based on BWC PrepCom requirements.
- Update a distributed DoD data management system for compiling and submitting BWC declarations based on PrepCom requirements.
- Test and evaluate on-site analytical equipment and methods to assess their efficacy and efficiency based on BWC PrepCom and anticipated REVCON requirements.
- Complete test and evaluation of Wake Island IMS prototype digital infrasound station.
- Complete test and evaluate prototype IMS auxiliary seismic stations.
- Prototype new hydroacoustic technology at Wake Island IMS station.
- Complete prototype IMS radionuclide sensors.
- Complete certification of IMS monitoring stations.
- Complete transition of the prototype IDC systems (Version 4) to the International CTBT Organization.
- Continue development of the next generation of treaty support information management systems (ACINS) using state-of-the-art technologies and adhering to DoD standards.
- Validate results of operational test and evaluation of software releases for IDC Systems.

Project BI - Arms Control Technology (cont'd) –

Develop upgrades to increase the prototype IDC capability to support on-going R&D.
Continue research and development efforts in support of the CTBT National Authority and National Data Center.
Provide technical support to the CTBT National Authority as events require.
Continue research on location calibration of IMS for seismic events.
Continue development of cost effective computerized, rapidly executing techniques and algorithms & detect, locate, and identify seismic, acoustic and gases signals from operational sensor systems.
Continue research and development to improve understanding of source phenomenology to detect, locate, and identify seismic, acoustic and radionuclide signals from operational sensor systems.
Continue research and development to improve understanding of source phenomenology and propagation for nuclear treaty-related events near detection threshold and enhance detection, location, screening, and identification of underground, oceanic, and atmospheric events through a peer-reviewed program of basic research.
Conduct analysis and assessments of selected CTBT implementation and compliance issues.
Develop decision making tools for policy and decision makers to support interagency and international groups.
Develop more cost-effective techniques for arms control related databases.

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)	DATE **February 2000**
APPROPRIATION/BUDGET ACTIVITY **RDT&E, Defense-Wide/Advanced Technology Development - BA3**	R-1 ITEM NOMENCLATURE **Arms Control Technology; 0603711BR**

B. Program Change Summary	FY1999	FY2000	FY2001
Previous President's Budget	57.3	58.5	55.3
Current Budget Submit	57.2	73.5	52.9

Change Summary Explanation:

In an effort to better focus the Agency organization and resources to the threat reduction mission, realignment of predecessor agencies' legacy programs and support baselines into an integrated DTRA program and resource structure has occurred. This budget request is reflective of this integrated DTRA program construct.

Changes in FY 2000 are attributable to compliance with Congressional emphasis in the areas of nuclear detection analysis and basic and applied research to support nuclear testing.